



Illustrations by Bryan Leister

Networking the Globe

**SU FACULTY, STAFF, AND ALUMNI
help empower communities and
countries around the world by
advancing their access
to the information
superhighway**

By Kathleen Haley

School of Information Studies professor Derrick Cogburn was disconcerted by what he found when he began collaborating with colleagues at the University of Fort Hare in South Africa. The historic university was tied to the limitless possibilities of the global information superhighway with only a single 64-kilobit connection. "If I were to connect my laptop computer right now using a wireless area network, I would have more bandwidth connecting to the Internet than they were sharing in their whole university," Cogburn says.

Cogburn wanted to bring the university on board as part of the Collaboratory on Technology Enhanced Learning Communities (Cotelco), a research lab based at SU with partners at other universities. The organization, which he founded and directs, studies geographically distributed knowledge work and cooperative learning between devel-

oped and developing nations. Cotelco holds all of its meetings online using advanced web conferencing and collaboration tools. To say the least, the technology proved challenging for the University of Fort Hare. But eventually, grants from foundations and local sources enabled the university to upgrade its Internet connection. "The consortium's research projects and seminars were part of the university's argument to say it needed more bandwidth," he says. "Now, it has the infrastructure to enable it to better participate."

Cogburn is one of many SU researchers, faculty members, staff members, and alumni who are reaching out with knowledge and technology to assist communities and countries around the world lacking the hardware, training, and access to fully participate in today's information society. This digital divide—the gap between those who have the technology and resources and

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those who don’t—has serious implications for future development. Those who fail

Professor Martha Garcia-Murillo
School of Information Studies

to catch up risk exclusion from the spirals of technology and information necessary to reap the benefits of the global economy. As many countries and communities seek to improve their infrastructures, experts are moving beyond just supplying computers and technical skills. They provide assistance in creating policies that increase access and help organizations, communities, and nations determine what their needs are and how technology can help. In Latin America, the Caribbean, Africa, Asia, and elsewhere, members of the SU community are sharing their expertise to bridge the gap.

Defining the Division

The term “digital divide” is believed to have originated in the late 1990s, appearing in *Falling Through the Net*, a report by the National Telecommunications and Information Administration of the U.S. Department of Commerce. The report highlighted the lack of Internet access in various communities in the United States. Those who have access take advantage of endless online opportunities: from being able to work with others a continent away to ordering groceries and finding entertainment. “The economy and our society have become so information intensive that if our citizens can’t take advantage of these tools, it will hinder our ability as a country and as an economy to compete and grow,” Cogburn says.

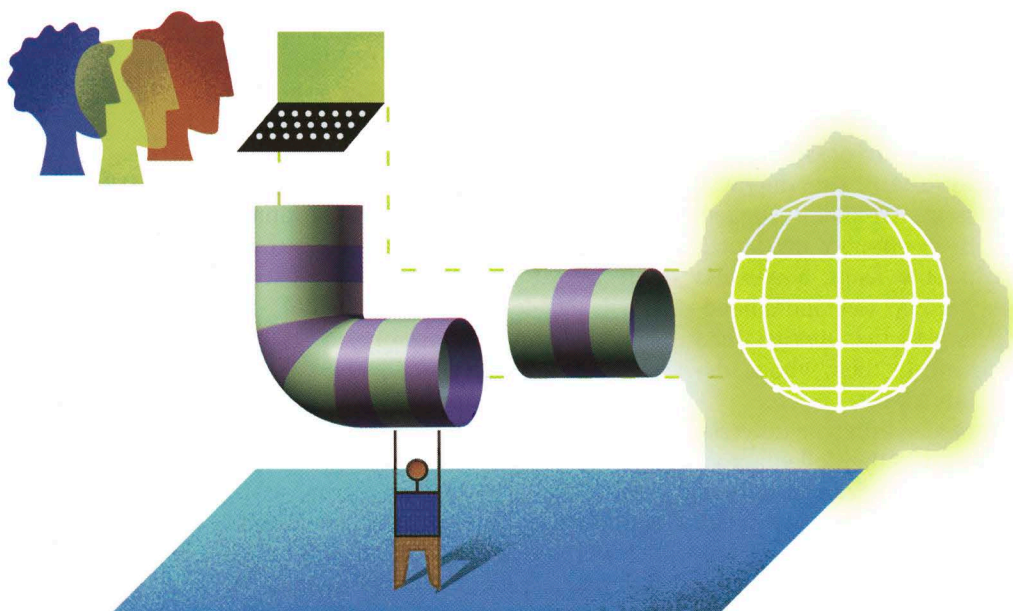
The theory also extends into the global arena. “At the international level,

the problem is much more serious because there are so many people who can’t afford a computer or an Internet connection,” says information studies professor Martha Garcia-Murillo, whose work focuses on Latin American countries. “That’s further exacerbated by the fact that the majority of words on the Internet are in English. It’s an issue of language, income, and digital literacy skills.” She also notes the lack of infrastructure in such poor countries as Honduras and Nicaragua, where the wait for a simple phone line may take years. She sees technology such as a mobile phone network, which connects people faster and at lower costs, as a solution for avoiding costly new wired infrastructure. “We are at a crucial time as to how connectivity will occur for developing nations, because there is a possibility it could be done if the right regulations are created and carriers are willing to cooperate,” she says.

In Central America, Garcia-Murillo worked to help the group of small nations harmonize policies for a cross-border regional network. “Central American countries are so tiny that no single country is attractive to any particular investor,” she says. “But, they can develop regional high capacity networks in which all of the countries could be aggregated and one consortium could build the entire regional network.” Garcia-Murillo talked with government regulators and officials from telecommunications companies and civil society organizations before preparing a

report that became a basis for negotiations among the countries. Even though connectivity has not yet been achieved, small gains are being made. During a visit to a government community center wired to the Internet in Managua, Nicaragua, Garcia-Murillo spoke with a teenager who was teaching his 8-year-old cousin about computers. A year later, the teenager sent her an e-mail explaining how he sells native crafts on the Internet. “You can see how connectivity gives people opportunities,” she says.

Increasing human capability is a focus of Cogburn’s efforts at Cotelco. “To build capacity in developing nations, you need scien-



tists and students linked to outside experts," he says. Expanding on that idea as part of a Cotelco initiative, Cogburn established a course, Globalization and the Information Society: Information, Communication, and Development. Students from all six participating universities—SU, American University, Howard University, the University of Fort Hare in Alice, the University of Pretoria, and the University of the Witwatersrand in Johannesburg—meet online and are grouped with students from the various universities. "The course teaches policy analysis, theoretical skills, and strategic management surrounding the information society, while also giving the students practical technical skills," he says. "Students use advanced web conferencing tools that allow them to participate in the course wherever they are in the world."

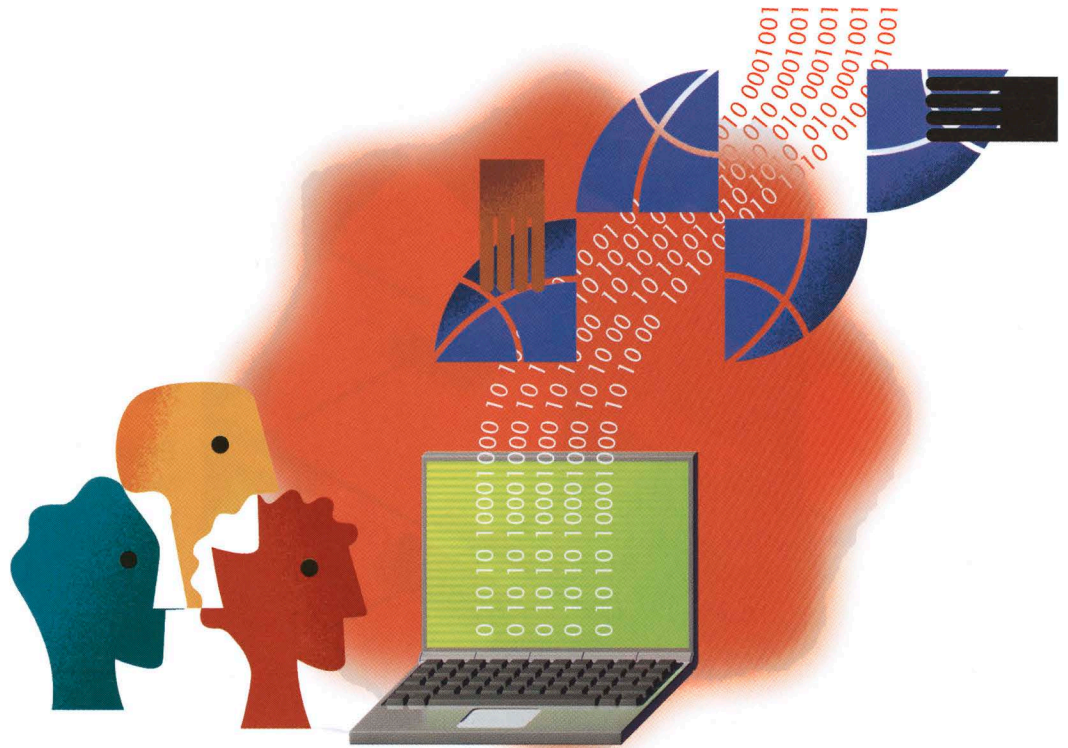
Creating Links

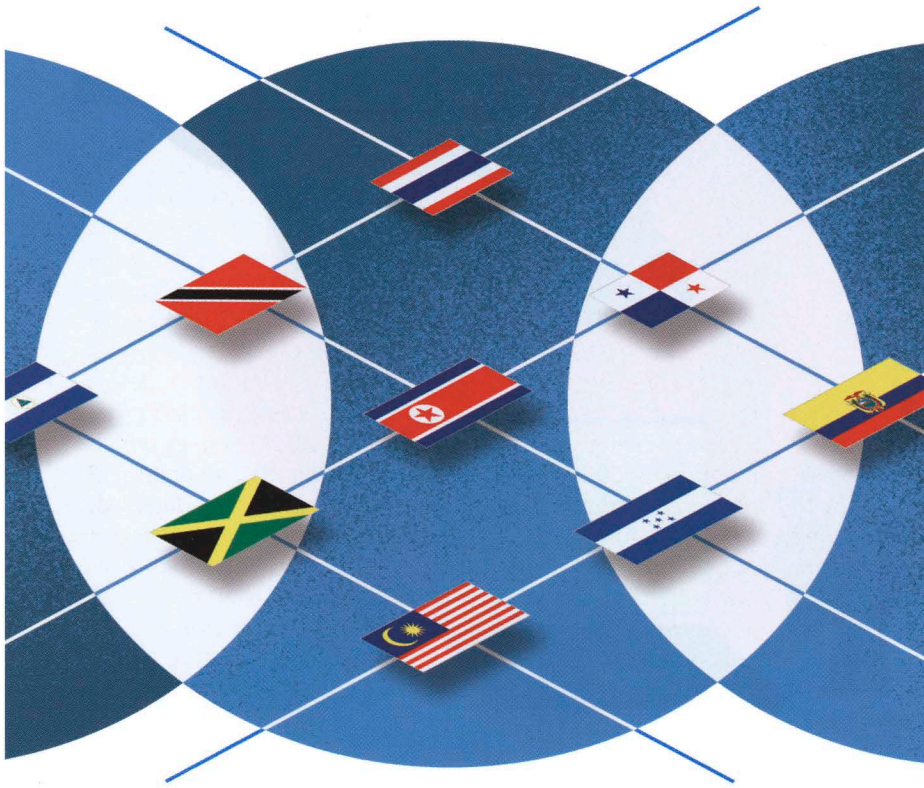
As director of the Community and Information Technology Institute (CITI) at the School of Information Studies, Professor Murali Venkatesh has overseen work that applies technology to benefit organizations and the clients they serve. In one project, students and CITI researchers worked with the Medicaid Chronic Care Unit of the Onondaga County Department of Social Services on its benefits process for chronic care patients. Researchers devised a computer video link between the Medicaid office and health care institutions. Applicants and their social workers can then meet with Medicaid specialists online without having to travel to a downtown office. "It went beautifully," Venkatesh says. "Applicants don't have to battle parking, the number of no-shows dropped at the Medicaid office, and the quality of information obtained by Medicaid was superior with the social worker and family members present." Another CITI project created a broadband link between Upstate Medical University and Faxton-St. Luke's Healthcare in Utica, New York. The link allows pediatric sonograms to be sent to Upstate Medical, which has more pediatric cardiac specialists than Faxton-St. Luke's, so that diagnoses can be determined and treatment plans can be implemented more quickly.

Venkatesh is also working with an enterprising new group that wants to create an ultra high-speed broadband network in Syracuse to enhance culture, commerce, and community engagement. "Part of what we're trying to do is

make Syracuse more cutting edge to attract high-tech businesses and stimulate entrepreneurs," says Andrew Covell '81, executive director of information technology at the Martin J. Whitman School of Management. The Syracuse Metropolitan Fiber-Optic Network (Symfony) was created through SU and The Institution of a Now Culture (ThINC), a local group dedicated to fostering artistic endeavors. "It started with a number of people thinking we could bring together various networking initiatives within the Syracuse area," says SU's chief information officer Paul Gandel G'86, a Symfony member. "It's about bringing people together to come up with new ideas and ways of revitalizing the community." This cyber ring around the city would establish networks to help connect SU and other technologically advanced institutions with city schools, nonprofit organizations, and lower income neighborhoods. Ultra high-speed broadband connectivity allows for use of advanced software applications, making it an ideal tool for collaboration. "No one really knows how the capability will be used, but if you think about creative people, they are all about exploring possibilities and pushing the envelope," Covell says. Artists who use animation, video, digital photography, and other rich media applications will have use of a powerful design platform, according to Covell. "By hooking up to a high speed network, we expect some good things to happen," he says. Covell is working on a Symfony project to create a community video archive, which includes materials from SU, other schools, artists, and WCNY-TV, the local PBS affiliate. "There is potential for economically challenged areas to showcase their communities and provide a finer lens for others to view what goes on there," he says.

Information studies professor Lee McKnight tied his inter-





est in wireless grids to a two-week summer session for a group of Boston high school students, advancing their knowledge and piquing their curiosity to pursue science careers. Supported by a National Science Foundation grant, the Wireless Grid Summer Institute brought together students, researchers, educators, and global leaders at the Museum of Science in Boston. Students explored the use of wireless grid technologies pioneered by McKnight and his students by developing a museum exhibition about Saturn's rings. The wireless application software allows individuals to work on the same content on separate computers at the same time. "The kids got fired up," McKnight says. Plans are under way for a second Wireless Grid Summer Institute in Boston and possibly one in the New York City area in 2006, as well as one at SU for international graduate students.

McKnight also works internationally to bring stakeholders together in the Caribbean to increase the region's Internet capacity. The First Jamaican Internet Forum, Expanding Internet Access, was held in 2003, with the Jamaican Office of Utilities Regulation and the School of Information Studies as lead organizers. "We looked at how to lower the cost for Internet access across the Caribbean," says McKnight, a member of the organizing committee. "With some venture investments, that could change the situation across Jamaica." Internet access, for instance, creates opportunities for economic development. He provides the example of a small manufacturer far away from a big city. If a machine breaks, no one can work until a part can be brought back from a city vendor. Online ordering cuts downtime. "It's just basic information that we take for granted," McKnight says. "But if you

don't have it, it's a tremendous barrier." The initiative's work continues annually under a new title: The Caribbean Internet Forum. The group held its third meeting in October in Barbados and was again successful in helping advance regional cooperation. A fourth forum is tentatively planned for 2006 in Trinidad and Tobago.

Expanding Interest

Merline Bardowell G'87, executive director of Jamaica's National Commission on Science and Technology, is part of the effort in Jamaica to expand Internet access. "We have been charged with increasing the number of Internet users in five years from 229 people per 1,000 to 500 per 1,000," she says. "My job is to work with the Ministry of Commerce, Science, and Technology and any other interested entity to ensure this happens." Bardowell stresses that content is just as important as technology. "We have to look at educating people, getting them to

understand the importance of technology and to embrace it, but also to understand the benefits of information and knowledge sharing," she says. To demonstrate the capabilities of information and communication technology (ICT), the commission partnered with an international organization on a number of initiatives, including the establishment of an agricultural business database and information system that provides market information to farmers and consumers. "For example, in one part of the country, there may be a glut of tomatoes, while another part is starving," she says. The database can connect surpluses to areas of need.

The commission also worked to open up the telecommunications industry. "Instead of one company providing cell phones, there are now several," she says. As competition has increased, prices have dropped. In 2004, Jamaica had 453,000 landlines and 2.23 million mobile phones in use. She notes it is less expensive to create a mobile phone network than to build phone lines, especially in rural areas. "There are people, especially in urban settings, who have far more access to ICTs than those in rural communities, where, in some cases, there is no access even to telephones," she says. "This is something we have to work on because in a knowledge-based society it is important that everyone is empowered."

While other countries struggle to increase the amount of Internet access, the Democratic People's Republic of Korea (DPRK) does not allow private citizens web access. However, a collaboration between SU faculty and staff members and DPRK researchers has allowed for the exploration of new possibilities. Political science professor Stuart Thorson directs a partnership with Kim Chaek University of Technology

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(KCUT) in the North Korean capital of Pyongyang, to develop the country's first digital library.

“Information sharing is one of the best ways to help transform a society,” Thorson says. “To imagine the alternatives, you have to be aware of them.” Representatives from KCUT have visited SU four times since the initiative began in 2002 and an SU contingent has traveled to North Korea twice, sharing widely known technical information. Computer engineering professor Shiu-Kai Chin '75, G'78, G'86 traveled to Pyongyang with an SU contingent consisting of faculty from the Maxwell School, the L.C. Smith College of Engineering and Computer Science, the School of Information Studies, and University College, and has co-hosted KCUT delegates. “The challenge is what to give them in terms of guidance, methods, and tools, so they will be in a better position to engage with the rest of the world's research community,” says Chin, director of the CASE Center, a New York State Center for Advanced Information Technology. One tool is a software application that checks mathematical proofs, important in developing new theories and designing hardware and software. “Our hope is, in the not too distant future, they will hook up to the Internet and we will be able to share documents and artifacts between North Korean universities and the rest of the world,” Thorson says. For example, the DPRK has a huge number of cultural artifacts that have never been shown outside the country in the last 50 years and could be digitized and made available online.

Accessing Quality Information

The ability to access data on the Internet and the quality of the information are equally relevant in building a knowledge-based society. Maria Cherrie G'04 knows the importance of both in her role with the Trinidad & Tobago National Library and Information System Authority. She is currently managing the Documentation Center of the Trinidad & Tobago National Commission for the United Nations Educational, Scientific, and Cultural Organization (UNESCO), which distributes information on the UN agency. UNESCO seeks to build cooperation among its members and serves as a clearinghouse for disseminating and sharing information.

Cherrie is working to provide access to UNESCO's publications and train people to search for information and documentation using its portal. “My initial target group will be school librarians, as well as librarians assigned to ministries that deal with UNESCO's areas of competence,” she says. Cherrie also oversees the setup of a local network and Internet connectivity at the documentation center. Software for people with visual impairments and other assistive technologies are expected to be added next year. “I feel very passionate about equitable

access to information,” she says.

As the national librarian of South Africa, John Kgwale Tsebe G'81 is leading

important work to increase the country's digital access to its own history. The National Library of South Africa (NLSA) is the primary custodian of the country's documentary heritage. NLSA's preservation services program participated in the National Digital Imaging Project of South Africa, in which more than 50,000 pages of South African anti-apartheid periodicals from the past several decades were digitized, including the magazine *Sechaba*. Published by the African National Congress (ANC) beginning in 1967, *Sechaba* documented ANC's freedom struggles. NLSA is also undertaking a huge card catalog conversion to increase the world's access to South African material via its online catalog and to satisfy an increasing demand for online public access facilities. In three years, an estimated 600,000 holdings will be processed. One of the limitations in providing this information is the fact that less than 10 percent of the South African population has access to the Internet. But it is expected that access, especially in rural areas, will increase as demand rises for improved technologies, and services become more affordable.

In rural parts of Malaysia, Anis Yusoff G'93 is helping empower teachers by providing them with easy-to-use computers that offer applications to complement their lesson plans. The program, E-Learning for Life, is part of Yusoff's work as an assistant resident representative with the United Nations Development Program. “The problem is that in other programs the kids are the ones who pick up how to use the computers very easily,” Yusoff says. “It's the teachers who have computer phobias.” Teachers are provided with Apple computers equipped with such software as PowerPoint and iMovie. The new computers then become a resource for the whole community. “It's about how one program can extend and create value in other ways,” he says. Yusoff's latest project is assisting Malaysia in creating a policy plan that addresses the digital divide. “We are examining parts of the country where we see the greatest divide,” he says. “We can then look at programs by the government, private sector, or international organizations to see if they are helping to bridge the divide. We want to take the next step, moving from divide to access.”

Experts recognize that progress involves more than just handing out computers and setting up networks. They must provide skills, create access, and build content to spread knowledge. The projects must have value and involve those most disenfranchised in the information society. “We can learn about computers and gain the skills,” Yusoff says, “but, ultimately, if the work doesn't help people, what is the meaning of all this?”